The uncanny valley effect for prosody

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The incorporation of human-like traits into intelligent verbal agents (IVAs) can strengthen their appeal as users are inclined to anthropomorphize technology. Nevertheless, non-human objects with close-to-human characteristics can evoke the uncanny valley effect (UVE), a feeling of eeriness. This study investigated whether very human-like prosody used by IVAs can evoke a UVE, looking at perceived eeriness, robomorphism, anthropomorphism and trust in/of IVAs. Two experiments were conducted in which participants (N = 88) listened to a virtual museum guide. The guide's voice was a human voice, the pitch of which was manipulated to sound more robotic, by reducing the variation around the declination over the utterance (first experiment) or around the average (second experiment). The reduction was 0% (human), 33%, 66% or 100% (most robotic); participants listened to each level once. There was a linear relationship between degree of prosody manipulation and participants' perceptions on the variables mentioned above, in the expected directions (experiment 1: $0.31 < |b| < 0.57$, $p < 0.001$; experiment 2: $0.27 < |b| < 0.74$, $p < 0.001$), but no evidence of a UVE. However, a few individuals did show a clear and consistent UVE, the significance of which cannot be estimated as each level was presented only once. A follow-up study using a finer-grained difference and more measurements per participants is underway; results will be discussed. This study's insights can contribute to better design and implementation of IVAs by tackling potentially unfavorable emotional and behavioral reactions to human-like voices.

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